AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-47. (canceled)

48. (new) A CVD system that acquires and analyzes spectral images of a wafer having one or more film layers prior to, during, and/or following a CVD process, the system comprising:

a viewport for providing optical access to said CVD system;

means for illuminating the wafer through said viewport;

a spectral imager disposed to detect light from said illuminating means that is reflected from the wafer and passes through said viewport, where said spectral imager is configured to produce a plurality of one-dimensional spectral frames while said spectral imager and the wafer undergo relative motion; and

means for aggregating said sequence of contiguous one-dimensional spectral frames to form a two-dimensional spectral image, and to analyze said two-dimensional spectral image to determine a one or more thickness values for one or more of the one or more film layers at one or more sites on the wafer.

49. (new) The system of claim 48 where said aggregating means determines a process endpoint.

50. (new) A method of obtaining and analyzing a spectral image of a wafer having one or more film layers prior to, during, and/or following a CVD process, the method comprising the steps of:

illuminating the wafer through a viewport with light from a light source;

positioning the wafer so that a desired portion of the wafer is illuminated with light that has passed through said viewport;

detecting light from said light source that is reflected from said desired portion of the wafer and passes through said viewport using a spectral imager configured to produce a sequence of spatially contiguous one-dimensional spectral frames while said spectral imager and the wafer undergo relative motion;

aggregating said frames to form a two-dimensional spectral image; and

analyzing said two-dimensional spectral images to determine a one or more thickness values for one or more of the one or more film layers at one or more sites on the wafer.

51. (new) The method of claim 50 where analyzing said two-dimensional spectral image determines a process endpoint.

52. (new) A semiconductor wafer processing system that acquires and analyzes spectral images of a wafer having one or more film layers prior to, during, and/or following a process, the system comprising:

a viewport for providing optical access to said system;

means for illuminating the wafer through said viewport;

a spectral imager disposed to detect light from said illuminating means that is reflected from the wafer and passes through said viewport, where said spectral imager is configured to produce a plurality of one-dimensional spectral frames while said spectral imager and the wafer undergo relative motion; and

means for aggregating said sequence of one-dimensional spectral frames to form a two-dimensional spectral image and to analyze said two-dimensional image to determine a one or more thickness values for one or more of the one or more film layers at one or more sites on the wafer.

53. (new) The system of claim 52 where said aggregating means determines a process endpoint.

54. (new) A method of obtaining and analyzing a spectral image of a wafer having one or more film layers prior to, during, and/or following a wafer manufacturing process, the method comprising the steps of:

illuminating the wafer through a viewport with light from a light source;

positioning the wafer so that a desired portion of the wafer is illuminated with light that has passed through said viewport;

detecting light from said light source that is reflected from said desired portion of the wafer and passes through said viewport using a spectral imager configured to produce a sequence of spatially contiguous one-dimensional spectral frames while said spectral imager and the wafer undergo relative motion;

aggregating said frames to form a two-dimensional spectral image; and

analyzing said two-dimensional image to determine a one or more thickness values for one or more of the one or more film layers at one or more sites on the wafer.

55. (new) The method of claim 54 where analyzing said two-dimensional spectral image determines a process endpoint.